

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING
FINAL EXAMINATION, MAY 2016
B.A, BSc, BASS, B.Ed.

TITLE OF PAPER: INTRODUCTION TO REMOTE SENSING

COURSE NUMBER: GEP 313

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS:

- 1. ANSWER THREE QUESTIONS**
- 2. QUESTION 1 IS COMPULSORY**
- 3. ILLUSTRATE YOUR ANSWERS WITH**
EXAMPLES AND CLEARLY DRAWN DIAGRAMS
WHERE APPROPRIATE

ALLOCATION OF MARKS: QUESTION 1 (COMPULSORY) CARRIES
40 MARKS WHILE THE REST CARRY
30 MARKS EACH

GEP 313: INTRODUCTION TO REMOTE SENSING-MAY 2016

32

SECTION A: COMPULSORY

Question 1

- a) Using diagrams of spectral reflectance curves for green vegetation, bare soil and water, discuss the behaviour of these three land cover types at different wavelength bands. (30 marks)
- b) Outline the main components of a remote sensing system. (10 marks)
(40 Marks)

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- a) Explain the benefits and limitations of using optical remote sensing for land cover mapping in Swaziland. (20 marks)
- b) 'The presence of atmospheric windows influences the design of optical satellite sensors'. Discuss. (10 marks)
(30 Marks)

Question 3

- a) Outline the characteristics of any modern high spatial resolution satellite mission highlighting the common applications of its imagery. (20 marks)
- b) 'Vegetation indices are commonly used in vegetation cover studies'. Discuss these vegetation indices highlighting their differences. (10 marks)
(30 Marks)

Question 4

- a) Describe the characteristics of the SPOT satellite mission in terms of its;
 - (i) orbit (2 marks)
 - (ii) swath width (3 marks)
 - (iii) temporal resolution (3 marks)
 - (iv) spectral resolution (5 marks)
 - (v) spatial resolution (5 marks)

57

Question 5

- a) Describe the two types of satellite orbits highlighting their major differences.
(14 marks)
 - b) Explain how density slicing and contrast stretching are used in image enhancement.
(16 marks)
- (30 Marks)**